

WAPA/WSDOT JOINT TASK FORCE

Superpave Implementation Task Group Meeting

Meeting notes for the May 27, 2004, meeting

The task group is co-chaired by Jim Spaid of WSDOT HQ Construction and WAPA member, Bill Hammett of Superior Asphalt. The meeting was held in the NW Region at the Kent Maintenance Facility.

ATTENDEES:

X	Jim Spaid – Co-Chair	WSDOT State Construction Office
X	Dave Erickson	WSDOT State Construction Office
X	Tom Baker	WSDOT State Materials Lab
X	Linda Pierce	WSDOT State Materials Lab
X	Jim Walter	WSDOT State Materials Lab
X	Joe DeVol	WSDOT State Materials Lab
X	Phil Nickson	WSDOT South Central Region
X	Ralph Robertson	WSDOT Eastern Region
X	Bill Hammett – Co-Chair	Superior Asphalt
X	Bill Dempsey	Lakeside Industries
X	Bill Whitfield	Icon Materials
X	Keith Howard	Wilder Construction
X	Tim Shearer	Woodworth
X	T. J. Morgan	Inland Asphalt
X	Dave Bell	Lakeside Industries

DISCUSSION TOPICS:

Jim Spaid opened the meeting with a brief overview of the new relationship of the task group with the WAPA/WSDOT Joint Steering Committee, and the assigned tasks as follows (reprinted from the Mid-Year Meeting handout):

Superpave Implementation

Updating specifications, testing protocols, and future evolution.

Purpose Statement: To maximize cooperation in implementation of Superpave design and construction methodology. Improve the precision and bias of test methods, better predict pavement performance, reward better performing pavements as indicated by performance-related specifications and improve pavement life.

Need Statement: Insure that Superpave specifications are conducive to the production and placement of superior pavements. To that end, develop specifications and testing protocols that are realistic, reproducible and predictable at every phase of the delivery system. Work to integrate future Superpave performance predictive test methods as they become available, understandable and reproducible.

Jim noted that the co-chairs of the committees will keep meeting notes and report progress back to the Joint Steering Committee. Bill Hammett commented that it had been some time since the group had met and there were some outstanding issues that need further discussion and clarification regarding the mix design process.

1. The mix design process

In general discussion, it was noted that this paving season would be somewhat of a transition year. There were many contracts in place that were developed using the 2002 Standard Specifications and amendments, and a few that were just beginning that utilize the 2004 Standard Specifications. Joe DeVol of the HQ Materials Lab noted that they had reviewed only two mix designs under the new specifications. Changes were being allowed by HQ Construction Office to adopt the 2004 specifications for projects under the 2002 Standard Specifications. Also, some small paving projects were being allowed to revert back to the 2002 Specifications to take advantage of previous mix designs.

Bulk Specific Gravity of Aggregate (Gsb) – As a part of the mix design verification process, the WSDOT HQ Materials Lab makes a determination of the bulk specific gravity of the aggregate (Gsb). The WSDOT value for Gsb becomes the value used for mix design verification. It is then used by WSDOT in the test section. There are generally differences in the Gsb values determined by the contractor and the WSDOT Lab. Since the value for Gsb is used in various calculations of volumetric properties, these differences can change volumetric results. Two companies provided examples of differences in Gsb values. One indicated that the WSDOT values for Gsb were typically lower than ones determined by the contractor. The other example had WSDOT values that were both higher and lower than contractor determined values.

The test procedure for determining Gsb is very labor-intensive, and AASHTO precision and bias shows a high degree of variance between labs. Because the WSDOT Lab is accredited and the person performing the tests is consistently rated highly in the testing procedure, WSDOT is reluctant to accept values of Gsb that are from labs and testers that are unknown in terms of qualifications.

Action item - WSDOT will data on file and compare contractor and WSDOT values for Gsb to see if there is a trend. The WSDOT asked that contractors provide the name of the tester and their qualifications in future submittals of mix design information.

WSDOT will continue to use the WSDOT HQ Materials Lab determination of Gsb. WSDOT Lab personnel indicated a willingness to work with industry as needed to resolve differences at the mix design stage.

Running Average of Five – This concept was a discussion topic in previous meetings as a means of dealing with variability of air void results (Va). The tolerance level allowed in the

results of the Va and the inherent variability in the determination of the bulk specific gravity of the mix (Gmb) have yielded penalties on some projects where Va has been a part of the combined pay factor. Averaging the Va or Gmb results would reduce the penalty.

Jim Spaid noted that the tolerance band for Va was set based on analysis of individual Va results. To consider use of an averaging method would dictate that the results would have to be re-analyzed using the averaging technique, which would be expected to result in a reduced tolerance band for Va. Tom Baker and Jim Walter noted that WSDOT was reviewing a recent analysis of more recent volumetric data, which is suggesting an increase in the tolerance band for Va. Additional in-house review is needed before any recommendations might be brought forward.

Research is on-going on better, more repeatable tests to determine Gmb.

Action items – WSDOT will continue review of the new data analysis. WSDOT and WAPA will continue to monitor research on new test procedures and equipment.

JMF Adjustments – WAPA members indicated that it is sometimes difficult to get approval for adjustments in the job mix formula (JMF). The Standard Specification allows that the contractor may request an adjustment in the JMF within specified limits, and if the change will produce a material of equal or better quality. In general discussion, it was noted that the greater bonus based on combined pay factors, should be an indicator of quality. There are situations where volumetric properties may suffer as a result of changes in the JMF. A change in the JMF could, therefore, result in a poorer quality product in terms of volumetric properties, while yielding a higher bonus based on gradation and binder content. There was no consensus on what action should be taken in this issue.

Volumetric Spec vs Gradation and AC Content – Dave Bell and Bill Dempsey presented a paper on this topic. The challenge is that in some gravel sources, it is difficult to meet volumetric requirements without pushing the limits of the control point for gradation. In particular, there has been discussion on-going on the lower spec limit for the #8 screen. Currently WSDOT requires the percent passing the #8 screen to be between 28 and 58 for HMA Class ½”, with no tolerance allowed for material variation below 28 percent. Contractors would like tolerances to be allowed outside of the control point limits so they are able to utilize the entire spec limit for design, in order to more easily achieve volumetric properties.

Action Items – WSDOT and WAPA members will consider the following proposals:

- a. **VMA** – Change tolerance from 1.0% to 1.5%
- b. **Gradation** – Change lower spec limit for #8 screen to 30% and allow full tolerance for material variation.

2. Sampling Problems

From time to time there it is difficult to obtain and representative sample from the hauling vehicle, as is the custom for obtaining HMA samples. It was proposed to allow the contractor to sample the mix in the presence of the WSDOT inspector.

Action Item – WSDOT will review sampling requirements and evaluate whether the

procedures might be changed to allow contractor sampling in the presence of the WSDOT inspector

Several alternative sampling techniques were also discussed with no consensus on whether they should be used. Tim Shearer indicated that Woodworth has had success using an aggregate splitter when splitting large aggregate mixes. The splitter is well coated with citrus release agent to prevent material from sticking to the splitter.

Action Item – Joe DeVol will review the procedure with Tim and come back with recommendations.

3. Changes to Acceptance Criteria by Special Provision

Bill Hammett asked about why there were special provisions that changed acceptance criteria. It was noted that the volumetric acceptance criteria for HMA was not incorporated into the 2004 Standard Specifications. The volumetric acceptance criteria is available as a general special provision (GSP), to be used by the regions at their discretion.

4. CoreLok and CoreDry

New technology for determining the bulk specific gravity of compacted HMA samples was discussed. CoreLok and CoreDry are devices being tested nationwide for repeatability and comparison with AASHTO T-166 test method.

WSDOT HQ Materials Lab has been testing the CoreLok device. A Tech Note is available on the findings of the testing at the following web address:

<http://www.wsdot.wa.gov/biz/mats/pavement/CoreLok%20technote.pdf>

The CoreLok will be used on the SMA project in North Central Region to compare with the results of the T-166 testing.

WSDOT is continuing to monitor nationwide research on the various new technologies on HMA testing equipment.

5. NCR Study of Contractor QC Testing

On a few large paving projects done during the 2003 paving season, North Central Region required that the contractor conduct quality control testing on the gradation and binder content of the HMA being placed. This information was submitted to WSDOT on a daily basis. This was required in conjunction with a reduction in the verification testing frequency done by WSDOT that included gradation, binder content and volumetrics.

The Materials Lab had an analysis done by a consultant on the results of the experimentation and is in the process of evaluating the feasibility of expanding the process to other projects. A report is also expected from the Region on their observations and recommendations. Further information will be forthcoming on this as it becomes available.

6. Decreasing Test Variability in Air Voids (Va)

This was to be a brainstorming session to solicit ideas that would minimize the variability associated with the determination of Va. The discussion centered on the temperature of the mix sample as it is being compacted in the gyratory mold. Compactibility of the gyratory sample is impacted by temperature variations. Sample temperature should be uniform, and at

the correct temperature as it is being compacted in the mold, as opposed to the temperature of the mix in the oven. The sample should be heated to a slightly higher temperature than the test temperature to allow for the time it takes the tester to transfer the sample to the gyratory mold.

Action Item – WSDOT will highlight the importance of compacting samples at the required temperature to the testers and trainers.

7. Eliminating the Compaction Test Section

Changes to the HMA specification that were incorporated into the 2004 Standard Specifications give the contractor greater control in designing the mix. Tom Baker suggested that be consideration of eliminating the compaction test section, which allows 800 tons of mix to be placed to test compactibility of the mix without a compaction penalty. Industry representatives referred back to the discussion on determination of bulk specific gravity of the aggregate in saying they did not agree that they did not yet have full control of the mix.

WSDOT is desirous of eliminating test sections as contractors gain comfort in the new design procedures (Superpave), and as new performance test procedures are developed and adopted. This may be a consideration for discussion prior to the 2006 Standard Specification update.

8. 5-04 Revisions

Dave Erickson handed out a copy of the amendments to Section 5-04 that will be implemented for project that are scheduled for advertising after August 2, 2004. Most of the amendments were clerical in nature, or provided clarification to the original specification. One change involved dropping the VFA requirement in the HMA mixture test section. VFA is still a requirement in the mix design verification.

Next Meeting

The task group determined that meetings should be held approximately every two months. The next meeting will be set for late July or early August. Jim Spaid and Bill Hammett will set the date, time and location.

Superpave Implementation Task Group

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